

## **REMARKS**

A final Office Action was mailed on May 24, 2007. Applicants timely filed a Response to final Office Action on August 20, 2007. An Advisory Action was mailed on August 28, 2007, indicating that the Response of August 20 would be entered because Applicants' arguments failed to overcome the rejection over the prior art or otherwise place the application in condition for allowance. Applicants timely filed a Notice of Appeal, together with a Petition for a three-month extension of time, on November 26, 2007. Applicants now timely file this Preliminary Amendment together with a Request for Continued Examination (RCE).

Reconsideration of the application is respectfully requested.

### **I. Status of the Claims**

Claims 1 - 19 are currently pending in the application. Claims 1, 14 and 19 are amended. No new matter is introduced. Support for the amendments may be found, for example, with reference to Applicants' specification at page 17, line 1 through page 20, line 12 and to Applicants' FIGs. 4 and 5

### **II. Rejections Under 35 U.S.C. § 103**

The Examiner has rejected claims 1-19 under 35 U.S.C. 103(a) as being unpatentable over *Maynard* (U.S. 5,385,539) in view of *Canpolat et al.* (U.S. 6,660,995) either alone or in combination with at least one of *Hahn et al.* (U.S. 5,838,429), *Burbank et al.* (U.S. 6,582,385), *Mould* (U.S. 4,082,461), *Heinemann et al.* (U.S. 6,529,184) or *Hunley et al.* (U.S. 6,554,788).

The Examiner concedes that *Maynard* fails to disclose or suggest that the apparatus comprises "a light emission device and a single light reception device in optical connection with one another." Rather, *Maynard* teaches a hematocrit sensor that **requires** two light reception devices. If one of the two light reception devices is taken out from the hematocrit sensor in *Maynard*, the invention in *Maynard* will not function as intended.

The Examiner contends that *Canpolat* can be cited to supplement *Maynard's* deficiency. *Canpolat* discloses an apparatus and method for using a single probe to introduce and collect light from a sample. In this regard, *Canpolat* describes that "the oscillation frequency increases with particle size...and that knowing the number of oscillations, one can determine the particle size. Furthermore, as discussed in greater detail below, particle size analysis is generally independent of the particle concentration" (*Canpolat*, column 3, lines 33-40).

In contrast to *Canpolat*, independent claims 1 and 19 claim the element of "a sensor connected to said blood circuit and configured to measure **hematocrit values**." Similarly, claim 14 claims a "method of measuring **hematocrit values**." Thus, while *Canpolat* simply provides a mechanism for measuring oscillation frequency to obtain an average particle size, Applicants' claimed invention addresses the more complex task of measuring blood concentration.

*Canpolat* states that "absorption has very little effect on particle size analysis" (*Canpolat*, column 3, lines 39-40). Thus, *Canpolat* does not teach a single light receiver for collecting data on absorption. Applicants submit therefore that *Canpolat's* sensor is unsuitable as a direct replacement for *Maynard's*, since no teaching or suggestion is provided for how it must function for *Maynard's* intended purpose to measure hematocrit values. Conversely, the present invention purposely aims at exploiting the light absorption characteristics of each component in the blood.

The Examiner finds the above arguments to be unpersuasive. In the Advisory Action of August 28, the Examiner suggests that *Canpolat* is relied on simply as "teaching that providing a single light reception device with a light emitter on the same side of the housing provides greater flexibility and sensitivity." In addition, the Examiner argues that *Maynard* teaches that hematocrit may be measured by the light scattering techniques taught by *Canpolat*. Applicants respectfully disagree.

With reference to FIG. 5 of *Maynard*, while a light emitter and two light receptors are disclosed as being on a single side of the blood sample for measuring scattered light, *Maynard* neither teaches nor suggest that a hematocrit measurement may be made using a single light receiver. Even assuming *arguendo* that the references may be properly combined, Applicants submit that the combination nevertheless fails to teach Applicants' invention as claimed. *Canpolat* teaches a "single-fiber, optical probe [that is] optically coupled to a light source and optically coupled to a spectrometer. Thus, the probe serves both to introduce light into the sample and to collect light scattered by the sample" (see, e.g., Col. 3: 41 - 45 of *Canpolat*). The Examiner concludes that "it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the light emitter and single light detector in a single probe system disclosed by *Canpolat* in the hematocrit system as disclosed by *Maynard* in order to provide greater flexibility in probe deployment and greater sensitivity.

In amended independent claims 1, 14 and 19, however, Applicants submit that a "single probe system" as disclosed by *Canpolat* does not represent the claimed subject matter. Rather, Applicants claim a sensor comprising **separate and distinct** light emission and a light reception devices that are **provided adjacent to each other** in a slot within the sensor so that **both devices are in optical connection with each other** and **positioned to face the blood circuit through Applicants' claimed slit**. In other words, in contrast to *Canpolat*, Applicants do not teach a single probe, but a sensor comprising **separate emission and reception devices** which view the blood circuit through a **common slit**. Applicants' claimed configuration provides the advantages of effectively reducing the size of their sensor while still providing individual light emission and light reception components in proximity to the blood circuit.

Applicants respectfully submit that none of the cited references, either alone or in combination, teach this configuration as claimed by Applicants in amended independent claims 1, 14 and 19, and that amended independent claims 1, 14 and 19 are therefore allowable. As claims 2 -

Applicants therefore respectfully request that the rejection of claims 1-19 under 35 U.S.C. § 103(a) be withdrawn.

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